

**I. AMENDMENTS**

In the claims:

Please amend claim 1 as follows:

1. (Twice Amended) A biodetector for the detection of a selected substance, said biodetector comprising:

E) a signal converting element, comprising (i) an extracellular ligand-specific binding domain which specifically binds said selected substance, wherein said ligand-specific binding domain comprises an epitope-binding fragment of an antibody, and (ii) an intracellular signal transforming domain of PhoQ, wherein binding of said substance to said epitope-binding fragment of said ligand-specific binding domain activates said intracellular signal transforming domain providing an activated intracellular signal transforming domain;

a transducer, wherein (i) said transducer has an inactive form and an active form which are distinct from each other, and (ii) said activated intracellular signal transforming domain converts said inactive form of said transducer into said active form of said transducer;

a transcription control element comprising the phoN promoter, wherein expression mediated by said transcription control element is activated by said active form of said transducer; and

a reporter gene operatively linked to said transcription control element, wherein expression of said reporter gene mediated by said transcription control element causes expression of a reporter gene product that provides a detectable signal, wherein said detectable signal is detected optically by bioluminescence detection or fluorescence detection.

Attached hereto are: a **version showing changes made to the claims** and a **currently pending claim set**.